

CANCER INCIDENCE AND PREVALENCE

CANCER INCIDENCE BY PRIMARY SITE

This section contains a report on Montana's cancer incidence data for calendar year 2000, reported as of July 2001. Mortality data are for the entire calendar year. Incidence reporting for calendar year 2000 was approximately 82% completed on this date with 3,290 new cancer diagnoses having been reported for 2000. For this reason, many multi-year comparisons exclude 2000. The expected number of Montana cancer cases for 2000 is 4,030. Estimates of Montana's expected cancer cases are based on Montana's population adjusted to the national Surveillance, Epidemiology, and End Results (SEER) rates to estimate age-specific expected cases. The age-specific rates are totaled to determine yearly estimated cancer cases expected.

Table 31 shows reported incidence of cancer for Montana residents diagnosed in 2000. The table shows cancer incidence by sex and by primary site--the original bodily location or organ system of the cancer. The most frequently diagnosed cancers were of the female breast (17.6% of all cancer diagnoses), the lung and bronchus (14.0%), the prostate (16.1%), the colon (6.4%), the urinary bladder (3.9%), Hodgkin's and Non-Hodgkin's Lymphoma (4.1%) and the rectum and rectosigmoid (3.1%). Invasive cervical cancer accounted for less than 1% of cancer diagnoses (4.4% for both in-situ and malignant) for Montanans for 2000. However, 124 of the 145 cervical cancers were in-situ--that is, non-invasive. Testicular cancer also accounted for less than 1% of cancer diagnoses—only 25 cases were reported in 2000.

Table 32 shows the incidence of cancer for the ten most frequently diagnosed primary sites and by the sex and age of the patient at diagnosis. Men diagnosed with prostate cancer tended to be 50 or older. Diagnoses of breast cancer in women generally began in their early thirties and the age distribution was not as concentrated on a central age category as was that of prostate cancer for men. In 2000, Montanans diagnosed with cancer of the lung and bronchus or the urinary bladder were most likely to be men aged 50 or older. Those diagnosed with cancer of the colon were about equally likely to be male or female and usually 50 years of age or older. The distribution of 2000 cancer diagnoses by site, sex, and county of residence is shown in **Table 33** for the 10 most frequently diagnosed primary sites.

Figures 51, 53, 55, and 55 show the number of cancer diagnoses by year, sex of the patient, and stage of disease at diagnosis for prostate, breast, lung, and colorectal cancer respectively. The stage of disease is recorded at the time of diagnosis and is not updated as the cancer progresses. Diagnosis at a localized stage means that the cancer has not spread beyond the organ or site of origin. Diagnosis at a regional stage means the cancer has spread to adjacent organs or regional lymph nodes. Diagnosis at a distant stage means the cancer has spread past adjacent organs or tissues to lymph nodes or organs elsewhere in the body.

Figures 52, 54, 56, and 58 show the five-year relative survival rates for these same cancers, comparing Montana and the United States. The five-year survival rate is the percent of all patients who are living five years after diagnosis, whether the patient is in remission, disease-free, or under treatment. These rates have been adjusted to account for patients dying from causes other than cancer.

PROSTATE CANCER

Prostate cancer was the most common cancer diagnosed in men in Montana and the United States, with 529 cases reported for 2000 in Montana. This incidence rate usually exceeds that of lung cancer. Nationally, it is primarily a disease of the elderly, as the median age at diagnosis is 70. In 2000, 108 Montana residents died of prostate cancer (**Tables 9 and 10**), making it the third leading cause of cancer deaths.

Figure 51 shows the number of prostate cancer diagnoses reported by year and the stage at diagnosis for the years 1991 through 2000. The patient diagnosed with prostate cancer at early stages may be asymptomatic or just have symptoms of lower urinary tract obstruction. In 2000, 64% of prostate cancers were diagnosed at a local stage. Bone pain is the most frequent complaint from patients diagnosed with advanced disease. In Montana, the percentage of prostate cancers diagnosed at a distant stage decreased from 10% in 1990 to 4% in 2000. The Prostate-Specific Antigen (PSA) test has been useful in detecting prostate cancer at earlier stages. About 90% of cancers of the prostate are characterized as adenocarcinomas.

Figure 51

**DIAGNOSIS OF PROSTATE CANCER
MONTANA RESIDENTS, 1991-2000**

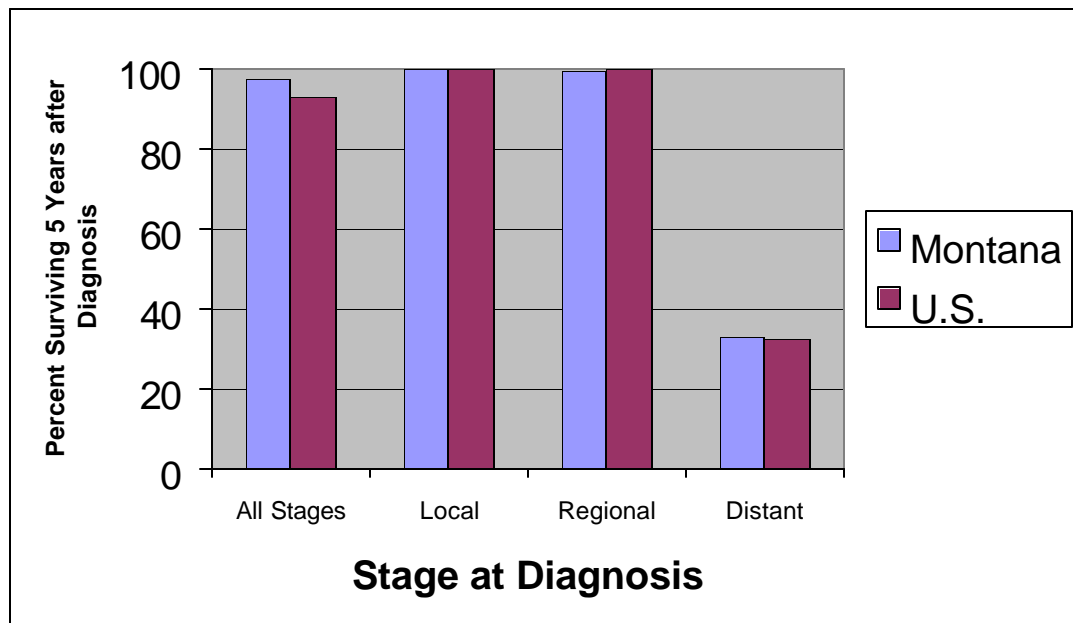
Year of Diagnosis	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Cases Diagnosed	628	809	795	637	700	651	639	676	608	529
Percent Stage at Diagnosis*										
In-Situ	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Local	53%	60%	60%	64%	63%	58%	60%	67%	60%	64%
Regional	17%	19%	19%	15%	14%	17%	13%	14%	15%	10%
Distant	10%	8%	7%	6%	5%	5%	6%	5%	4%	4%
Unknown	20%	14%	14%	14%	19%	19%	20%	14%	21%	22%

* Percents may not add to 100% because of rounding.

Figure 52 shows five-year survival rates for prostate cancer, comparing Montana's to the United States' rate. Over 99% of Montanans diagnosed at a localized or regional stage were alive five years after diagnosis; however, only about 33% of those diagnosed at a distant stage were alive five years after diagnosis. Although survival rates are high for early diagnosis, it should be re-emphasized that prostate cancer was the third leading cause of cancer deaths among Montanans in 2000.

Figure 52

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR PROSTATE CANCER
MONTANA AND THE UNITED STATES, 1991-2000**



Prostate cancer is generally treated with surgery or radiation. About 50% of patient's diagnosed with prostate cancer have surgery (prostatectomy) within four months after diagnosis. Patients with early stage prostate cancer often opt for no treatment, but their physicians must watch these patients closely. About 35% of prostate cancer patients are treated with radiation. About 25% are treated with hormonal therapy shortly after diagnosis, but this course of treatment is usually reserved for patients with advanced disease.

BREAST CANCER

Breast cancer was the most frequently reported malignancy among Montana women for 2000, with 578 cases reported as diagnosed. It was the underlying cause of death for 132 Montanans in 2000 (**Tables 9 and 10**), making it the fourth most frequent cause of cancer deaths. Breast cancer incidence increases dramatically with age, and the majority of cases occur after age 50. In Montana in 2000, 17% were diagnosed at an in-situ stage, 51% of breast cancers at a local stage, 22% at a regional stage, and 3% at a distant stage.

The distribution of stage at diagnosis is shown in **Figure 53**. The proportion of patients diagnosed at an in-situ stage has increased slightly over the past decade, while the proportion diagnosed at a distant stage has decreased. Patients are being diagnosed at earlier stages and are detecting cancers earlier. Breast self-examination (BSE) may detect about 60% of breast cancers. Patients who perform routine BSE find smaller lesions and it is well established that women with early-stage breast cancer have better chances of survival. Screening mammography can detect a breast cancer in an earlier stage, which may account for an increase in the diagnosis of breast cancer nationally over the last decade.

Figure 53

**DIAGNOSIS OF BREAST CANCER
MONTANA RESIDENTS, 1991-2000**

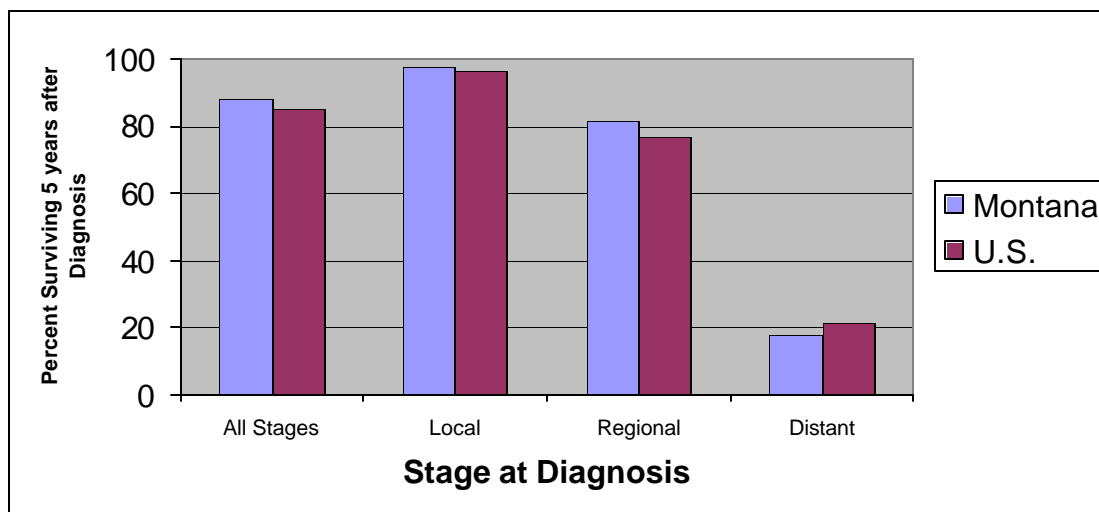
Year of Diagnosis		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Cases Diagnosed	Males	3	2	5	4	1	1	5	5	4	2
	Females	549	602	666	630	678	734	713	757	687	581
Percent Stage at Diagnosis*											
In-Situ		6%	10%	7%	10%	12%	12%	14%	15%	18%	17%
Local		56%	54%	59%	56%	56%	55%	51%	54%	50%	51%
Regional		27%	26%	25%	24%	22%	24%	29%	26%	24%	22%
Distant		4%	2%	3%	6%	4%	4%	3%	2%	3%	3%
Unknown		7%	8%	5%	4%	6%	5%	3%	2%	5%	8%

* Percents may not add to 100% because of rounding.

Figure 54 shows the five-year relative survival rate for women diagnosed with breast cancer, comparing Montana with the United States. For Montana women, this rate was 98% at the local stage. Diagnosis at a regional stage decreases five-year survival to about 81%. If the cancer was diagnosed at a distant stage, the rate of survival was 18%. Breast cancer is treated in a variety of ways. Almost 95% of breast cancer patients are treated with surgery (lumpectomy or mastectomy) and about 40% are treated with radiation. About 40% are treated with both surgery and radiation. About 35% of patients are treated with chemotherapy, hormonal therapy or both. Almost 75% of breast cancers are duct cell carcinomas and over 10% are lobular carcinomas, which are a form of adenocarcinoma of the mammary gland.

Figure 54

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR BREAST CANCER
MONTANA AND THE UNITED STATES, 1991-2000**



LUNG CANCER

In Montana, lung cancer was the second most common cancer diagnosis among men (after prostate cancer) and women (after breast cancer) for 2000; 459 new cases have been reported for 2000. It was the underlying cause of death for 483 Montanans (**Tables 9 and 10**), making it the leading cause of cancer deaths. The incidence of lung cancer increased in males by about 10% from 1991 to 2000; the percentage increase in women was more than twice as large (30%).

The number of cases diagnosed and the stage at diagnosis for lung cancer diagnoses of Montanans are shown in **Figure 55**. In 2000, 41% of lung cancers were diagnosed at a distant stage and only 20% at a local stage. The stage was unknown or unstageable for about 12% of lung cases in 2000. Certain types of lung cancer spread very early and quickly, which causes the patient to be diagnosed at a regional or distant stage.

Figure 55

DIAGNOSIS OF LUNG CANCER MONTANA RESIDENTS, 1991-2000

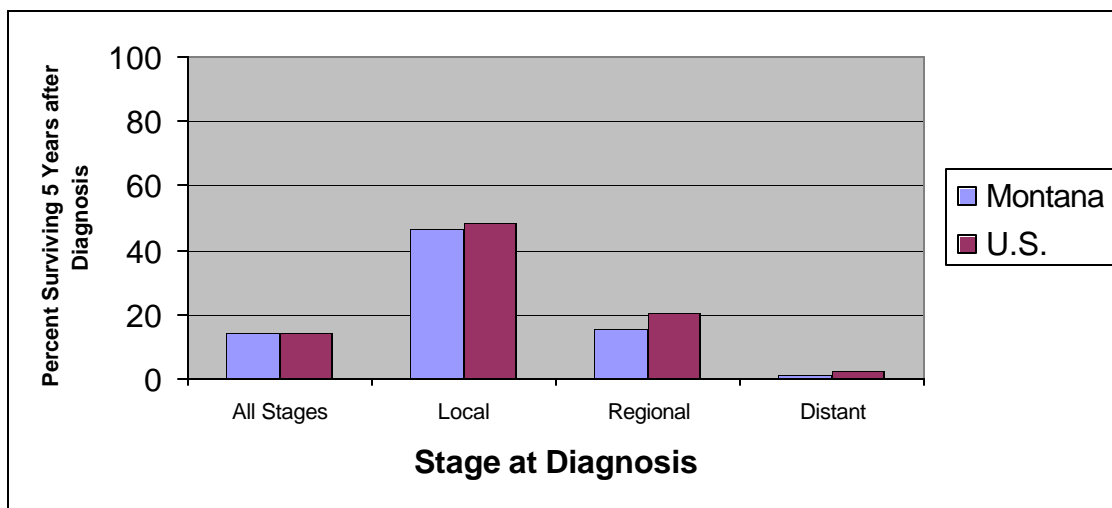
Year of Diagnosis		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Cases Diagnosed	Males	304	308	307	316	332	344	322	381	284	247
	Females	193	202	212	227	230	241	263	295	210	212
Percent Stage at Diagnosis*											
In-Situ		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Local		21%	22%	22%	22%	18%	21%	17%	18%	16%	20%
Regional		27%	25%	25%	24%	24%	22%	26%	28%	28%	27%
Distant		34%	39%	42%	38%	40%	41%	41%	42%	44%	41%
Unknown		17%	13%	11%	16%	18%	16%	15%	12%	12%	12%

* Percents may not add to 100% because of rounding.

Lung cancer has a much poorer prognosis than other cancers, partly because relatively few cases are diagnosed at an early stage. **Figure 56** shows the five-year relative survival rate for lung cancer, comparing Montana and the United States rates. Forty-six percent of patients diagnosed at a localized stage survive five years; however, only 15% survive five years if diagnosed at a regional stage and less than 2% if diagnosed at a distant stage. Treatment methods for lung cancer are determined by the type of cancer and the stage at diagnosis. Most lung cancers are treated with surgery, radiation, or chemotherapy. About 24% of patients with lung cancer are treated with surgery and about 45% are treated with radiation. Chemotherapy is given to about 40% of patients. A cough is the most common symptom of a lung cancer, but since coughing is a common symptom of many acute and chronic conditions, the diagnosis of lung cancer may be delayed. Twenty-four percent of lung cancers are squamous cell carcinomas, derived from stratified squamous epithelium. Almost 26% are adenocarcinomas and 20% are carcinoma, NOS.

Figure 56

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR LUNG CANCER
MONTANA AND THE UNITED STATES, 1991-2000**



COLORECTAL CANCER

Colorectal cancer was the fourth most common malignancy in Montanans for 2000; there were 314 cases diagnosed and 166 deaths caused by colorectal cancer in 2000 (**Tables 9 and 10**). Because of the anatomic proximity and physiologic similarity of the colon and rectum, these two segments are often reported together as "colorectal" cancer. The incidence of colorectal cancer is extremely low in childhood and increases with age. **Figure 57** shows the frequency and stage at diagnosis for cancers of the colon and rectum. In 2000, 33% were diagnosed at a local stage, 44% at a regional stage, and 13% at a distant stage.

Figure 57

**DIAGNOSIS OF COLORECTAL CANCER
MONTANA RESIDENTS, 1991-2000**

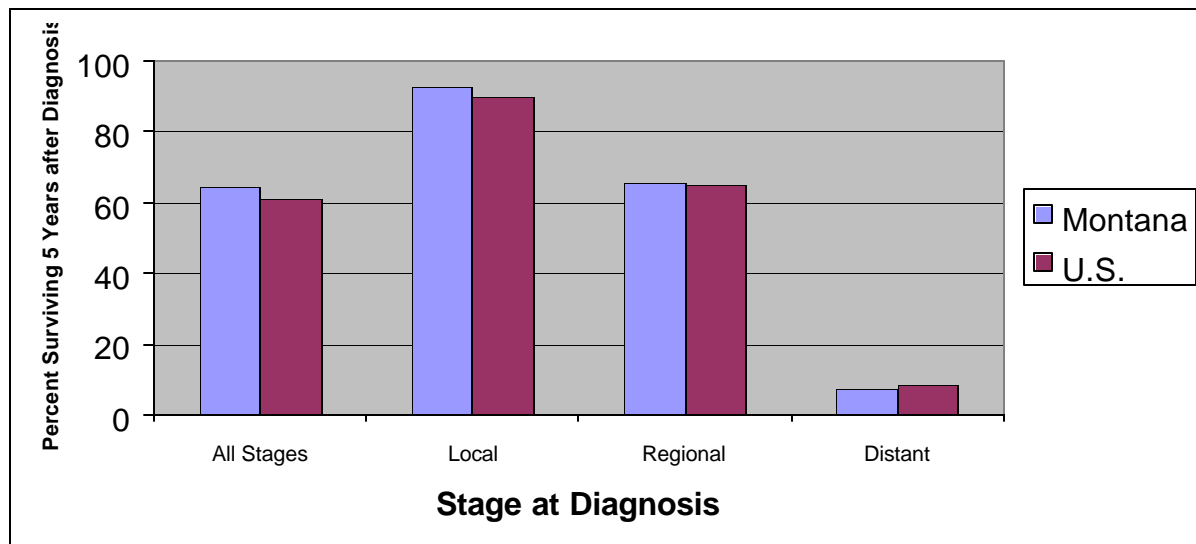
Year of Diagnosis		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Cases Diagnosed	Males	248	220	224	222	222	251	264	289	243	174
	Females	206	192	201	223	221	216	227	237	205	141
Percent Stage at Diagnosis*											
In-Situ		3%	2%	2%	2%	2%	3%	4%	4%	2%	4%
Local		39%	40%	34%	39%	34%	36%	36%	34%	32%	33%
Regional		32%	34%	40%	35%	40%	39%	38%	41%	43%	44%
Distant		17%	15%	16%	14%	15%	13%	15%	16%	16%	13%
Unknown		9%	9%	8%	9%	9%	8%	6%	5%	7%	6%

* Percents may not add to 100% because of rounding.

Figure 58 shows the five-year relative survival of patients diagnosed with colorectal cancer, comparing Montana and the United States. When colorectal cancer is detected at an early, or localized, stage the five-year relative survival is almost 93%. After the cancer has spread to a regional organ or lymph node, the survival rate drops to about 65%. Colorectal cancer is mostly treated with surgery or chemotherapy or both. Almost 90% of patients with colorectal cancer are treated with surgery and about 33% are treated with chemotherapy. About 15% are treated with radiation. About 70% of colorectal carcinomas are adenocarcinoma and 11% are mucinous adenocarcinoma (an adenocarcinoma which secretes mucin).

Figure 58

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR COLORECTAL CANCER
MONTANA AND THE UNITED STATES, 1991-2000**



References:

SEER Cancer Statistics Review, 1973-1997, National Institutes of Health, National Cancer Institute.
Practical Oncology a Lange Clinical Manual, Robert B. Cameron, MD, 1994.
Clinical Oncology, Second Edition, American Cancer Society, 1995.